

George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

ED27-CDL-FOP-005
BASELINE
JULY 29, 1999

FACILITY OPERATING PROCEDURE

ED27 / STRUCTURAL AND DYNAMICS TESTING GROUP

DATA ACQUISITION USING KEITHLEY 500A WITH VIEWDAC

**CHECK THE MASTER LIST—
VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE**

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DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		07/29/99	Document converted from ED73-CDL-FOP-005. Changes made to document are organizational and reference document numbers.

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1. SCOPE

1.1 Scope. This facility operating procedure (FOP) provides instructions for the general operating procedures to acquire and monitor data using the Keithley 500A with VIEWDAC Software in the Control Dynamics Laboratory at Marshall Space Flight Center.

1.2 Purpose. The purpose of this procedure is to define the steps necessary to set-up the Keithley 500A for data acquisition using VIEWDAC. This procedure will be used to assist in defining all necessary system inputs and pre-test checks.

1.3 Applicability. This procedure applies to the Keithley 500A system used in the performance of dynamic and controls testing within the Modal and Control Dynamics Team(ED27).

2. REFERENCE DOCUMENTS

Associated Equipment Manuals

Keithley DAC 500-Series Measurement and Control Systems Manual

Keithley ASYST VIEWDAC Reference Manual

3. DEFINITIONS

3.1 Sequence A VIEWDAC sequence is a collection of tasks and front panels. Sequences are designed to perform acquisition, to create virtual instruments, and control applications. A sequence can be thought of as a program, with the tasks analogous to subroutines. Sequences are edited and displayed through sequence windows.

3.2 Task A task is a sequence building block. Task are used to perform specific jobs; for example, an analog input task is used to acquire data and a numeric display task is used to display data. The functional task categories and their associated tasks are include in the appendix.

3.3 Structured Tasks A structured task is a special task that contains other tasks executed in the order in which they appear in the task list.

3.4 Front-Panel A Front-Panel is a window associated with a sequence. All sequences create a front panel by default. The front panel allows the user to view and/or modify tasks while they are running.

3.5 Virtual Instrument A Virtual Instrument is a customized data acquisition, analysis, and display tool designed and implemented using sequences. Virtual instruments are designed using special windows called front panels. These windows display results and allow input to sequence tasks. Virtual instruments can emulate the functions of different hardware such as digital multi-meters, spectrum analyzers, and curve tracers.

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4. INSTRUCTIONS

- 4.1 Verify that all instrumentation has been set-up and calibrated; with all transducer id's, calibrations, point numbers, and location numbers identified .
- 4.2 To activate the VIEWDAC software package change the VIEWDAC directory by typing `cd c:\viewdac` at the dos command prompt. Then type `viewdac`.
- 4.3 Create a new sequence file by selecting the File\New\Sequence. A sequence window titled `sequence:unamed1.seq` will open.
- 4.4 Create and enter a data acquisition sequence to satisfy the particular test requirements
- 4.5 Create data display and enter the appropriate data acquisition parameters for a particular test and data set. The VIEWDAC software package allows the user to create and edit data acquisition set-up parameters and data displays.
- 4.6 Measurement set-ups should be saved once completed.
- 4.7 Once data has been acquired for a measurement set, the data is stored.

5.0 QUALITY RECORDS

- 5.1 The Test Set-Up Sheet . The Test Set-Up Sheet shown in the appendix should be filled out for every test.

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POST-TEST VERIFICATION

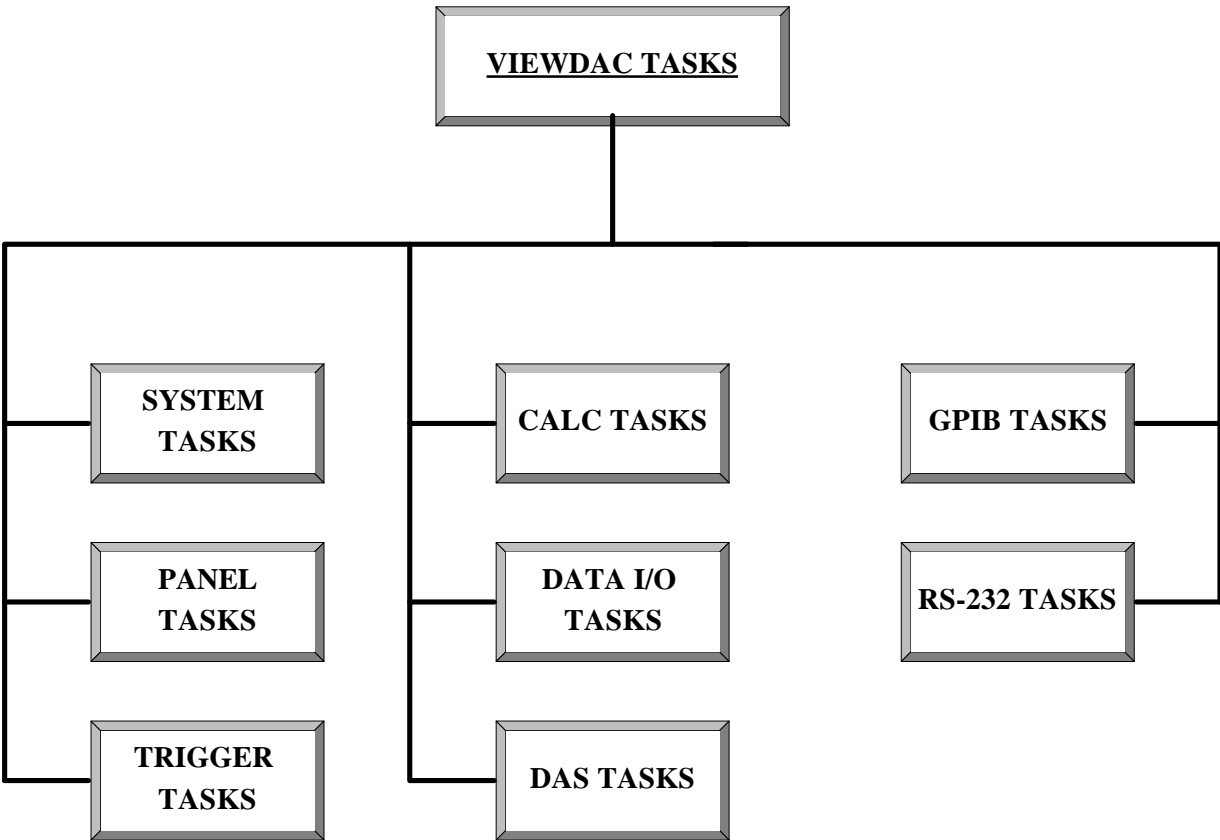
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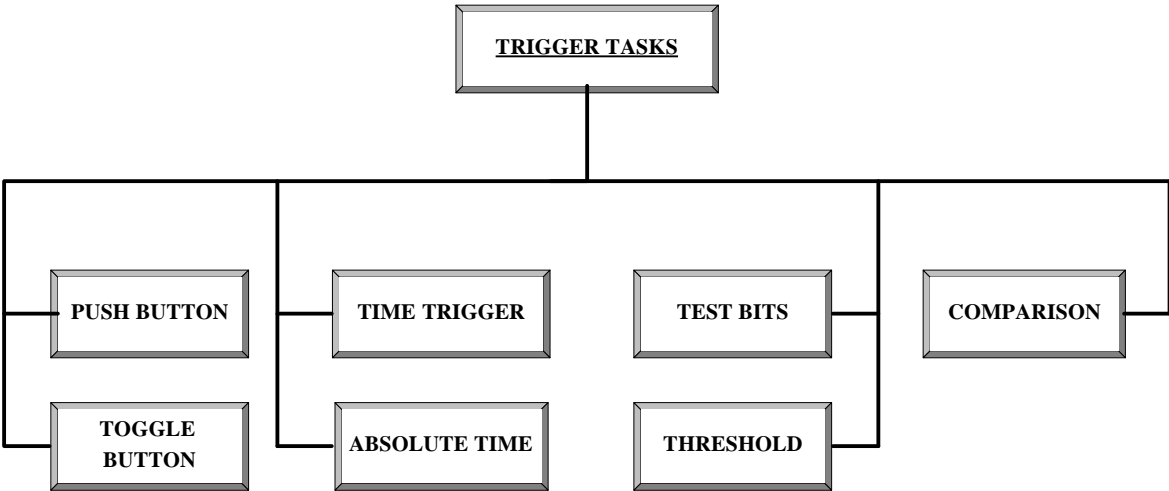
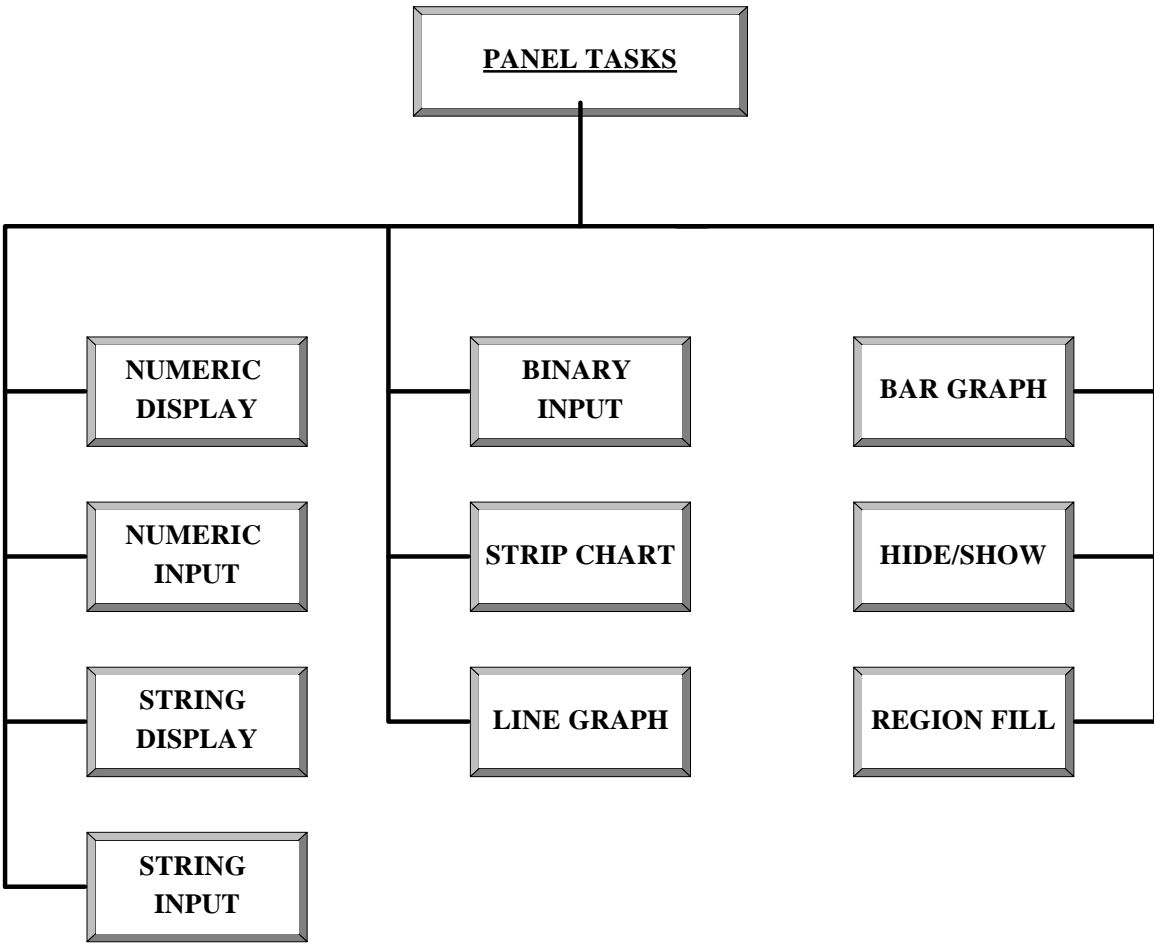
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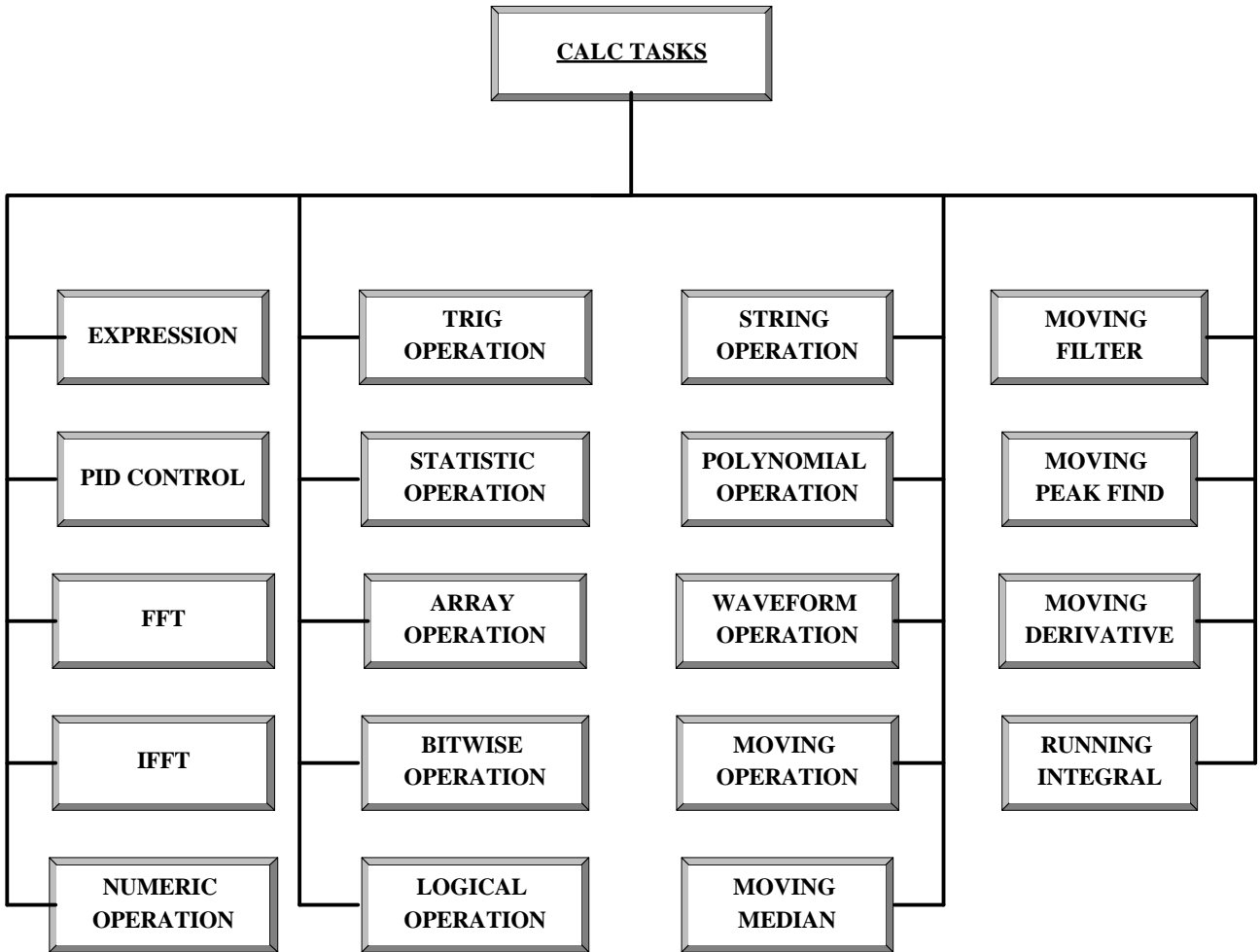
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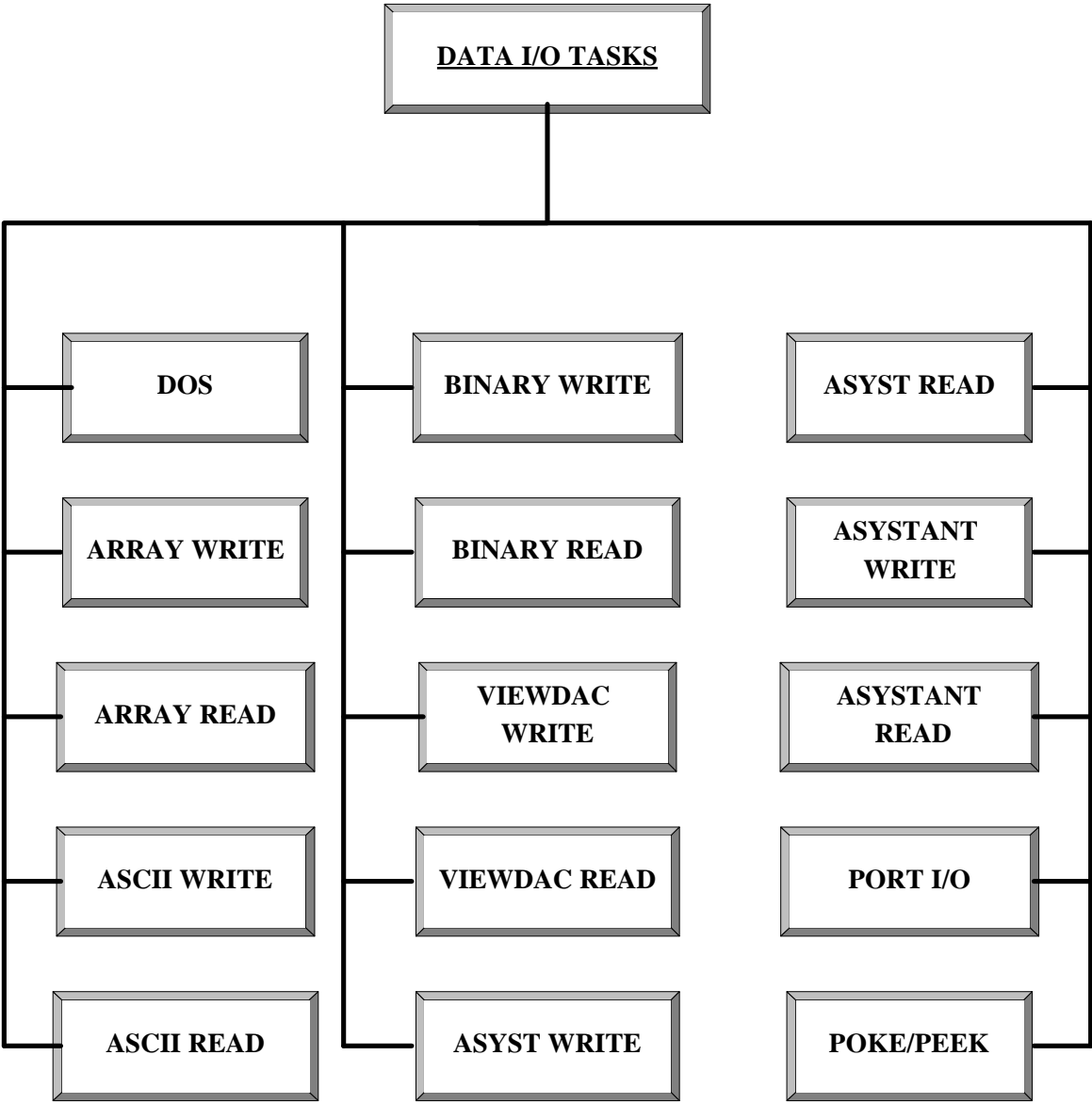
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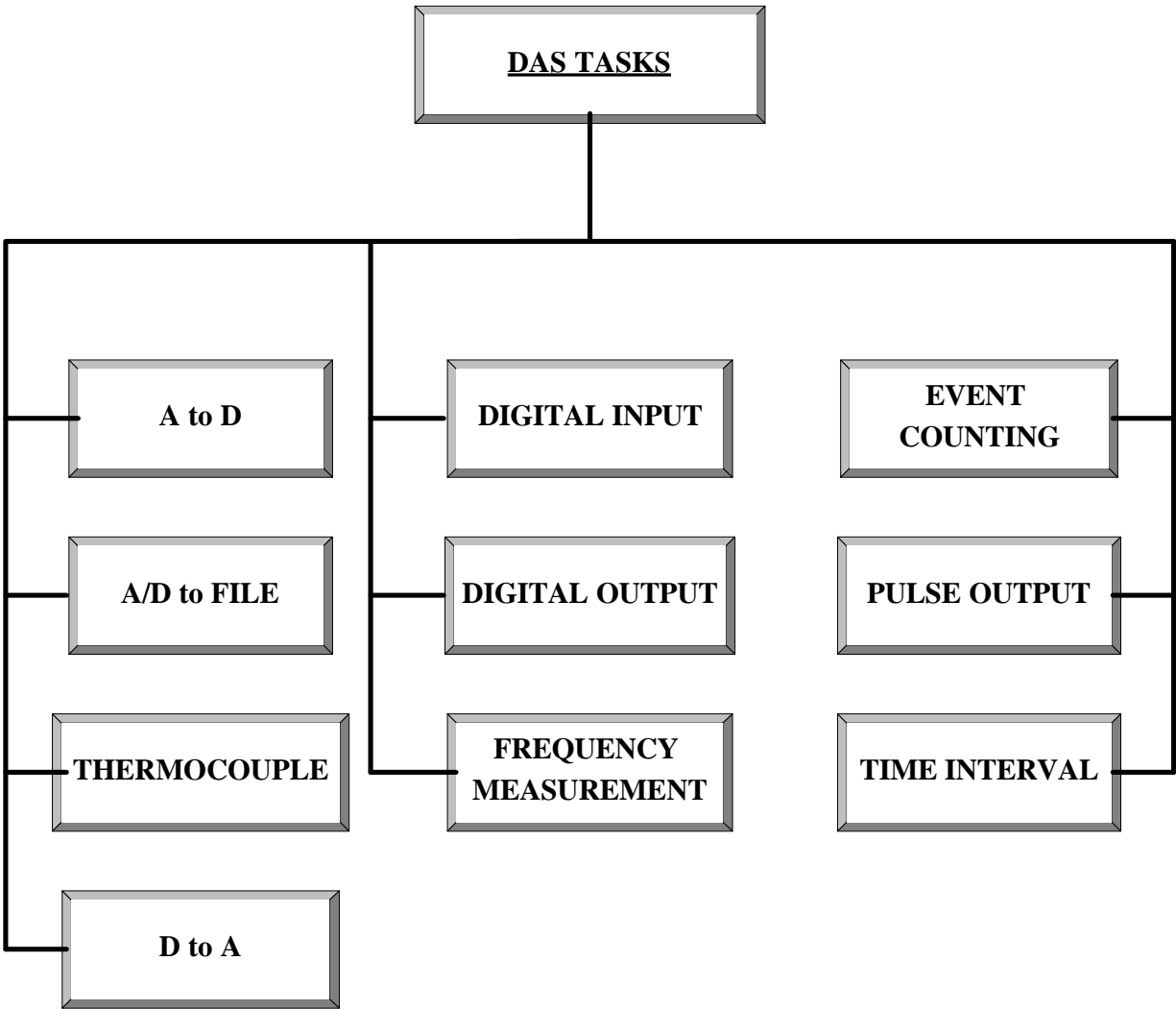
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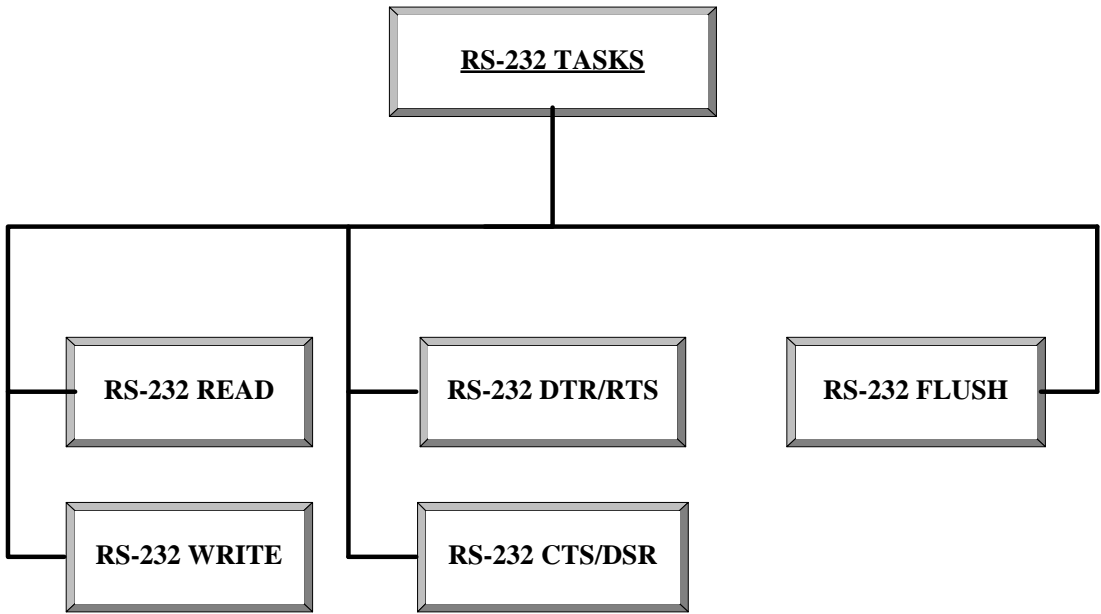
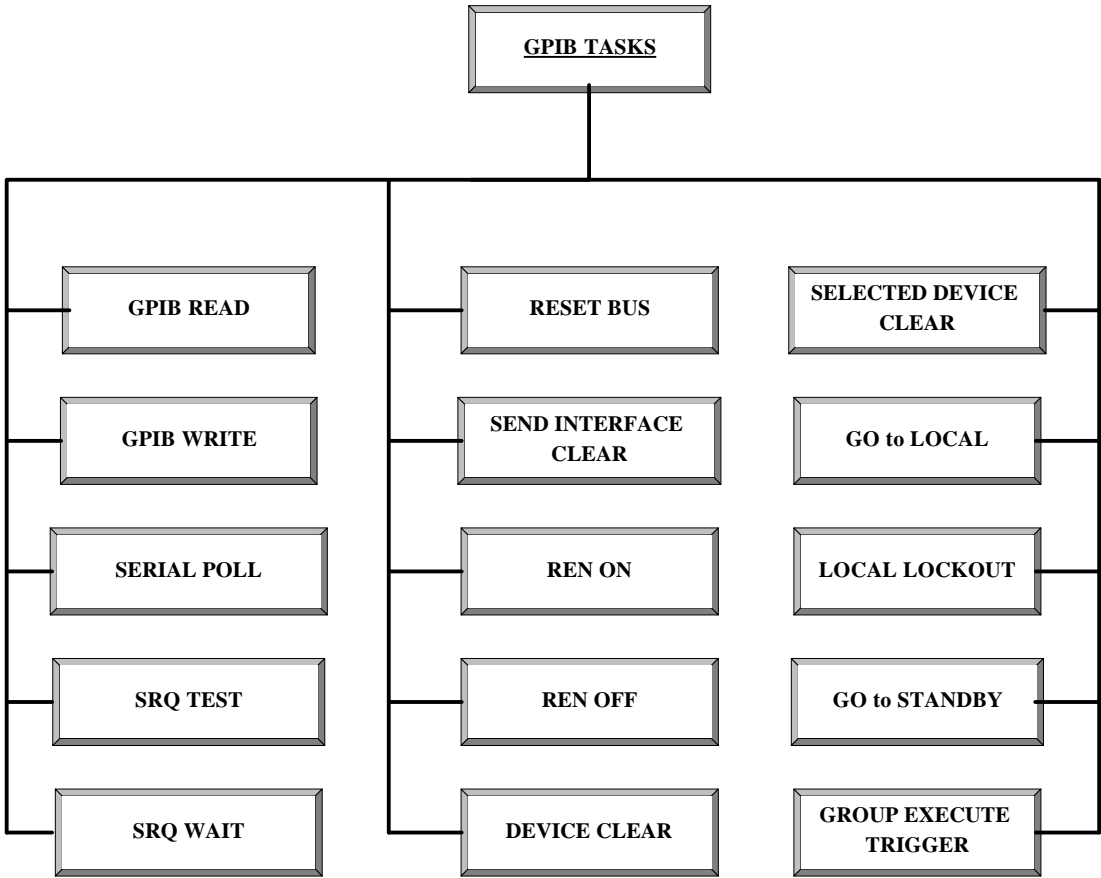


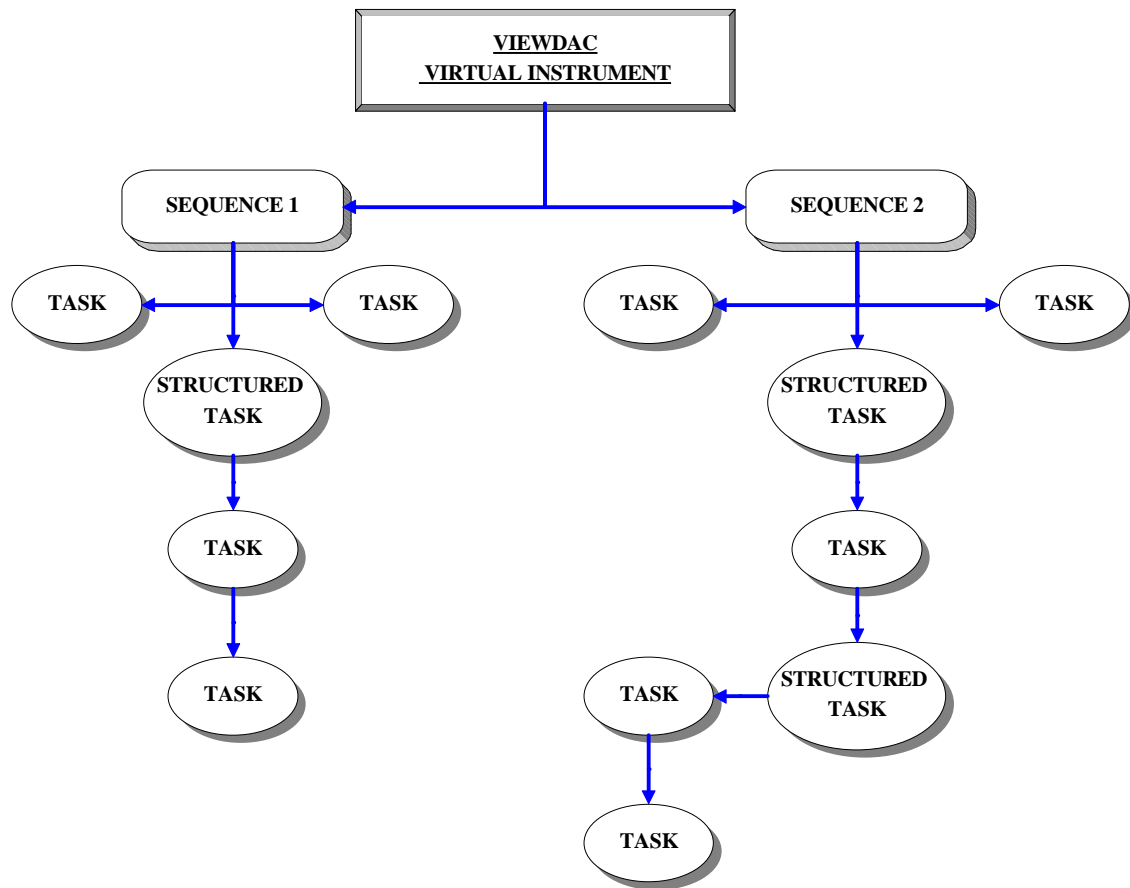












EXAMPLE: INSTRUCTIONS TO CREATE A VIRTUAL INSTRUMENT TO MONITOR VOLTAGE

1. Add a system task such as a Loop task, Block task, or a Do While task from the system task list.
2. Select the Edit Button and enter the structured task control parameters. Double-clicking on the structured task with the mouse will open a window for the system tasks.
3. Select the A/D task from the DAS tasks and enter the control parameters.
4. Select AIM3A interface card as the interface card to acquire data, enter the number of channels of data, and calibration values associated with each channel.
5. Select a panel task such as a numeric display or a Strip in order to monitor the input data.
6. Save the created file.
7. Select the start button to acquire data. The strip chart will display the data.
8. Select the stop button to end execution.